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DATA ASSIMILATION OF THE GLOBALLY TELECONNECTED MARTIAN ATMOSPHERE

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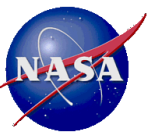


“Global” Weather

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Group Discussion

- Mars has “global” weather
 - Phenomena that have a very large spatial scale
 - Affect global or at least hemispheric hemisphere
 - Weather phenomena
 - Rapid rate of change (hours to days timescales)
 - Chaotic or irregular behavior (phasing or occurrence)
 - Also includes long-range teleconnection responses
- Mars examples
 - Large scale dust events (regional and global)
 - Northern polar region responses within 24 hours
 - Thermal tides and planetary scale waves
 - In the context of changes in strength or phase
 - Baroclinic waves
- No equivalent terrestrial phenomena
 - Thus terrestrial DA systems not designed to handle it



Questions

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Group Discussion

- Assimilating Global Weather
 - Are localized DA schemes the best (or even adequate) for Mars?
 - All currently active schemes are localized
 - Localized schemes discarding available information
 - This results in inconsistent atmospheric states
 - How to handle global weather within an ensemble?
 - Should one member always be in a state of global weather?
 - Should the different types of global weather be handled differently?
- Forecasting Global Weather
 - Is forecasting global weather different from other types of weather?
 - What are the forecast horizons?
 - How are they similar or different from terrestrial results?
 - Consider the duration of global dust storms...
 - Consider the non-chaotic seasons/regions